

PATENT SPECIFICATION

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COMPLETE SPECIFICATION

Improvements in Colostomy Appliances

I, YVON JOSEPH TASSE, a Canadian Citizen, of 4820 Borden Avenue, in the City of Montreal, Province of Quebec, Canada, do hereby declare the invention, for which I pray that a patent may be granted to me, and the method by which it is to be performed, to be particularly described in and by the following statement:—

The present invention relates to an improved appliance for the collection and temporary accumulation of the evacuation of the intestines or bladder in cases of colostomy or similar abdominal operations.

A particular object of this invention is to provide an appliance which will conform to the contours of the area of the body to which it comes in contact so that it may be fitted about the wearer with the minimum amount of pressure and discomfort to the wearer.

Another object is to provide an appliance, the outer contours of which so nearly conform to the body surface as to render the appliance non-perceptible through an outer garment when the latter is of a close fitting nature.

Another object is to provide an appliance of the character described which is of a semi-rigid plastic or like substance, the component parts of which, in assembled relation will respond to flexing and distortion of the body and will return to its normal condition after such distortion.

A still further object is to provide an appliance of the character described with a novel assembly arrangement by which an accumulator bag may be firmly secured in place so as to form a perfect seal between the bag and the body of the wearer.

Heretofore, it has been the custom to provide heavy and awkward colostomy appliances which not only produced unsightly bulges on outer garments, but which depended upon the application of distorting pressure against the abdominal wall of the body to maintain the appliance in sealing engagement with the body. Such distorting pressure not only becomes

unbearably uncomfortable to the wearer, but also tends to protrude the mucous membrane lining the evacuation outlet beyond the abdominal wall, which may eventually distort the shape of the outlet and the surrounding area to an objectionable size. Furthermore, such distorting pressure tends to reduce the blood circulation which would in itself result in serious consequences if sustained.

Another objectionable feature of the conventional colostomy appliances is in the manner in which the accumulator bags are attached. In practically all cases the assembly units are so arranged as to provide an objectionable bulge at the point of juncture between the bag and appliance. In certain of the appliances the bag is introduced through the front of an aperture in the appliance so that portions of the bag are disposed in contact with the body with the marginal portions of the bag turned over a body contact ring. In such cases the fastening of the marginal portions tends to form pleating or gathering of the wall of the bag around the ring with resultant unevenness to the body contact surface. This causes open spaces, irritation and discomfort to the wearer. It then becomes necessary to apply additional distorting pressure on the abdominal walls to cause the body surface to fill up these spaces. The result is that the wearer is subjected to another form of discomfort.

In order to overcome all of these objectionable features of the colostomy appliances which are currently in use, I have conceived an appliance which is to be specifically designed to meet the particular requirements of each individual. It will be appreciated, therefore, that each appliance is designed to, as nearly as possible, the exact dimensions of the individual for which it is intended, although certain of the characteristic features of my appliance will be universal.

A particular personal feature of this invention resides in the provision of a body contacting and bag carrying disc which, when

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applied to the body, will closely fit the normal body contours within the area of contact. Normally this requires the provision of two interchangeable discs, one which will conform to the body contours when the body is in the erect or vertical position and one which will conform to the body contours when the latter is in the reclining or horizontal position. The reason for this is that there are substantial changes in the body contours in both of these positions, with the result that a disc which conforms to the body contours in the one position will not lie flat against the body when in the other position without applying body distorting pressure to the appliance. The elimination of such distortion is, however, one of the primary objects of this invention.

Another feature resides in the provision of a shallow convex shaped outer carrier disc which grips the mouth of a gab around the collar of the inner disc so as to secure the bag in sealing engagement, and which provides a substantially smooth and almost flat surface to the assembly by reason of its maximum depth adjacent the collar being equal to the depth of the collar and the tapering of the disc from its maximum width to the outer periphery. This latter tapering provides a thin marginal outer edge to which the defining edge of an opening in a girdle or like garment may be secured in overlapping relation without creating an appreciable bulge.

The above and other objects, advantages and characteristic features of my invention will be understood more readily from the following detailed description taken in connection with the accompanying drawings, in which:

Fig. 1 is an elevational view showing one embodiment of my invention in association with a girdle or like garment.

Fig. 2 is an elevational view enlarged, of my invention shown in Fig. 1, with associated parts of the garment.

Fig. 3 is a sectional view taken along the lines 3-3 of Fig. 2.

Fig. 4 is a view similar to Fig. 2 but showing a modification thereof.

Fig. 5 is a sectional view taken along the lines 5-5 of Fig. 4.

Fig. 6 is a sectional view illustrating the manner in which an impression of a body is taken to provide a mould for one of the discs of my appliance.

Figs. 7 to 10 inclusive are sectional views through a molding box showing various details in the construction of moulds and the resultant discs obtained therefrom.

Referring more particularly to Figs. 1 to 5 of the drawings, 5 designates a bag supporting disc provided with a central opening 6 which is adapted to surround an evacuation opening, generally indicated at 7 in the abdominal wall 8 of the wearer. A collar 9 defining the opening 6 is provided with a peripheral

recess 10 intermediate the outer surface of disc 5 and a lip 11 at the outer edge of the collar 9.

A bag 12 of suitable disposable material and provided with an inwardly projecting annular beading 13 at the mouth end thereof, is fitted around collar 9 with the beading 13 received in the recess 10 between the disc 5 and the lip 11 of the collar. A carrier disc 14, provided with a central opening 15 is then fitted about the collar 9 with the bag protruding through its central opening. Carrier disc 14 flatly engages the outer surface of disc 5 and the marginal defining edge of its central opening 15 compresses the beaded portion 13 of the bag into the collar recess 10 to secure the bag in its fitted position about the collar 9.

In Figs. 1 to 3 I have shown one embodiment of my invention which has been fitted in a girdle 16. The girdle 16 is provided with an opening 17 behind which the marginal portion 18 adjacent the peripheral edge of carrier disc 14 is disposed so as to flatly engage the inner surface of the girdle surrounding opening 17. Lines of stitching 19 secure the disc 14 at its marginal portion 18 to the girdle 16. To assemble, the bag supporting disc 5 is first placed against the abdomen to surround the evacuation opening 7. Bag 12 is then fitted over collar 9 with the annular beading 13 in recess 10. That portion of girdle 16 which carries disc 14, is then fitted against the wearer so that disc 14 is brought to bear against disc 5 with the bag protruding through the central opening 15 in disc 14 and the defining edge of the said opening 15 surrounding collar 9 and compressing the beading 13 of the bag into the recess 10 provided therefor. Although not illustrated, it will be obvious that my device may be similarly applied to a corset or other abdominal supporting band.

In Figs. 4 and 5, I have illustrated a modified arrangement for securing my device about the wearer. The disc 14 is provided with fastening elements 20 at opposite sides to which complementary fastening elements 21 at opposite ends of a waist encircling band 22 are secured. Preferably one end of band 22 is first secured to one of the fastening elements 20 on disc 14. The disc 14 is then fitted against the bag supporting disc 5 in the manner above described, and then the band after being passed around the waist of the wearer is secured by its fastening element 20 at the free end thereof to the complementary fastening element 21 at the opposite side of the disc 14. Band 22 may be of resilient stretchable material and/or provided with suitable adjusting elements of a conventional nature (not shown) for adjusting its length to suit the wearer.

The bag supporting disc 5 is moulded to fit the contours of the area of the body with which it comes in contact and is made of a

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3

flexible material, which is preferably of plastic composition, and which will follow any distortion of the body due to constant swell and recess inherent in breathing, or flexing of the body in any position. The moulded disc 5 should be of approximately uniform thickness beyond the adjacent edge of the collar recess 10, and should be sufficiently thin to enable it to revert at all times to its normal contour, which follows the normal contour of the body, regardless of the distortion to which it is subjected.

In order to provide such a moulded disc, an impression of the area of the body with which the disc will come in contact, is taken. For best results separate impressions should be taken in both an erect position for daytime wear, and in a reclining position for night time wear. The importance of this will be readily appreciated upon the realization that the body contours vary considerably in the erect and reclining positions. The device is particularly designed to conform to the body contours for snug fitting rather than resorting to the application of pressure on the body to distort the same to comply with the surface dimensions of the device. Thus the desirability of separately moulded discs 5 for daytime and night time wear will be apparent. As the method of taking the impression is identical for both positions, I have only shown the taking of one impression, as illustrated in Fig. 6. This comprises the formation of a mould 25 by the application of plaster of paris impregnated gauze while in a plastic state to the body surface surrounding the evacuation opening 7. The impregnated gauze is spaced from said opening by a tubular member 26 to provide a central opening of a size which will conform with the diameter of opening 6 in the resultant moulded disc 5.

Mould 25 is then placed in a box 27, as shown in Fig. 7, after tubular member 26 has been removed. The box is provided with a central tubular wall 28 the diameter of which corresponds to the diameter of the removed member 26. A mould of ceramic plaster 29 is then made which takes the impression of the contours on the surface of plaster of paris mould 25. A second ceramic plaster mould 30 is then made with a substantially flat moulding surface which will lie substantially parallel to the surface of mould 29, except for the slight undulations in the surface of the mould 29. As shown in Fig. 8, it is necessary, before pouring the moulding composition of mould 30, to provide a form 31 about the tubular wall 28 which will provide the pattern for the collar 9 of the formed disc 5 and pouring inlet 32. When the mould 30 is set, it is removed from the mould box 27 and form 31 is stripped therefrom.

The mould 29 is then placed in box 27, as shown in Fig. 9, with its contoured surface exposed and the mould 30 is superimposed

thereon. Spacer blocks 34 regulate the uniform thickness of the finished disc 5. Plastic is then introduced by means of a pouring spout 35 through the inlet 32 provided in mould 30 in the region of the collar section 9. Air vents 36 through the wall of mould 30 adjacent the outer periphery permit free flow of the plastic between the moulds 29 and 30.

The carrier disc 14 is similarly moulded from a plastic material having the qualities of the plastic employed in the formation of disc 5. As shown in Fig. 10, a bottom mould 37 of ceramic plaster composition is placed in box 27 about tubular wall 28. This mould has a surface which corresponds to the outer surface of the moulded disc 5. A second mould 39, also of ceramic plaster composition, having a concave moulding surface, is then superimposed over mould 37 with the peripheral edges of each mould in contact with each other. A form 40 is placed around tubular wall 28 so as to provide a central opening 15 in the moulded disc 14 of a diameter intended to provide a snug fitting of the carrier disc 14 about the outer periphery of collar 9. It will be seen that with the peripheral edges of the moulds 37 and 39 in contact relation a suitable space is provided for the formation of the disc 14. The plastic is then poured through an opening 42 in mould 39. One or more air vents 36 extend through mould 39 to allow free flowing of the plastic in the formation of disc 14.

In Figs. 3 and 5 I have exaggerated the spacing of the opposing edges of collar 9 and the central opening 15 in disc 14, for the purpose of illustrating the manner in which the internally directed annular beading 13 of bag 12 is received in recess 10. However, in actual practice these opposing edges would normally contact without the walls of the bag therebetween, so that with the bag therebetween, a pressure fit is provided which retains the disc 14 about the collar 9 against a very considerable pulling stress on the bag. Thus, after an evacuation the weight of the bag and its contents would not be sufficient to displace the disc 14 from its position about the collar 9.

It will also be noted that in Fig. 5 the diameter of disc 14 is substantially equal to the diameter of disc 5, while in Fig. 3 the diameter of disc 14 is greater than that of disc 5. The latter arrangement, while not necessary, is preferable where it is desired to secure the disc 14 to a girdle corset or the like. Thus, the overlapping marginal portion around the opening 17 in the girdle may be secured to the disc 14 beyond the overlapping edge of disc 5 and thereby reduce any bulge as a result of a 3-ply overlapping.

The bag 12 is of a disposable type made of thin plastic material which readily lies against the assembled device without creating

a perceptible bulge. The annular beading 13 on the inner wall surface of the bag provides direct placement of the beading in the collar recess 10 without subjecting the bag to any pleating. Thus the maximum sealing effect is obtained when disc 14 is emplaced thereabouts. The assembled discs 5 and 15 with the bag secured therebetween forms a homogeneous appliance which is about $\frac{1}{4}$ " in total thickness and is not more than about 1 ounce in weight. The outer contour of disc 14 is convex, having its maximum thickness adjacent collar 9 equal to the depth of the collar from the outer surface of disc 5, and tapers to the peripheral edge thereof. Thus is provided an appliance which may be fitted about the wearer without appreciably altering the body contour and with no discernable bulges on the surface of an outer garment. Moreover, the disc 5, being moulded to conform with body contours, fits snugly against the body by a pressure sufficient only to prevent slipping but not enough to distort the body contours or to cause discomfort or irritation to the wearer. For example, when incorporated in a girdle, the holding pressure of the appliance is no greater than that applied by the girdle about the remainder of the body portion encompassed by the girdle.

What I claim is:—
1. A colostomy appliance comprising a substantially flat disc member for contact engagement with a substantial area of a person's body surrounding a body opening therein, a collar defining a central opening in said disc for surrounding said body opening, a flexible bag having a marginal portion of its open end surrounding said collar and a second disc provided with a central opening the marginal defining edge of which is forcibly fitted about said collar and said open end of the bag to compressibly secure the said open end between said collar and said second disc, said second disc being disposed to flatly engage the outer surface of said first mentioned disc when said bag is secured against said collar.

2. A colostomy appliance as set forth in claim 1, in which said second disc is convexly curved on its outer surface to taper from the plane of the outer edge of said collar to points at least adjacent the outer periphery of said first mentioned disc.

3. A colostomy appliance as set forth in claim 1, in which said collar is shaped to provide a peripheral recess between a peripherally extending lip and the outer surface of said

first mentioned disc to receive the marginal portion of said bag.

4. A colostomy appliance as set forth in claim 3, in which said marginal portion of the bag comprises an inwardly directed annular beading receivable in the recess of said collar to prevent slippage of that portion of the bag surrounding the collar when said second disc is disposed in securing engagement about said collar.

5. A colostomy appliance comprising a substantially flat disc of thin flexible plastic material having its inner surface adapted for contact with a substantial body area surrounding a body opening therein, said disc being provided with a central opening adapted to surround said body opening, a collar defining said disc opening and projecting beyond the outer surface of said disc, a flexible bag having its open end surrounding said collar and a second disc of flexible plastic material provided with a central opening, said second disc being fitted to the outer surface of said first disc with the marginal edge defining its central opening forcibly fitted about said collar in pressure engagement with that portion of said bag surrounding said collar.

6. A colostomy appliance as set forth in claim 5, in which the inner surface of said first disc is moulded to conform to the body contours with which the disc comes into contact.

7. A colostomy appliance as set forth in claim 5, in which said second disc is of a diameter at least equal to the diameter of said first disc, said second disc being provided with a peripheral marginal portion and means fitted to said marginal portion for securing the appliance to the wearer.

8. A colostomy appliance as set forth in claim 7, in which said means comprises an encircling band having terminal portions attachable to the peripheral marginal portion of said second disc at opposite sides thereof.

9. A colostomy appliance as set forth in claim 7, in which said means comprises a waist encircling garment provided with an opening therein, said marginal portion of the second disc being secured to the marginal portion of the garment surrounding the opening therein.

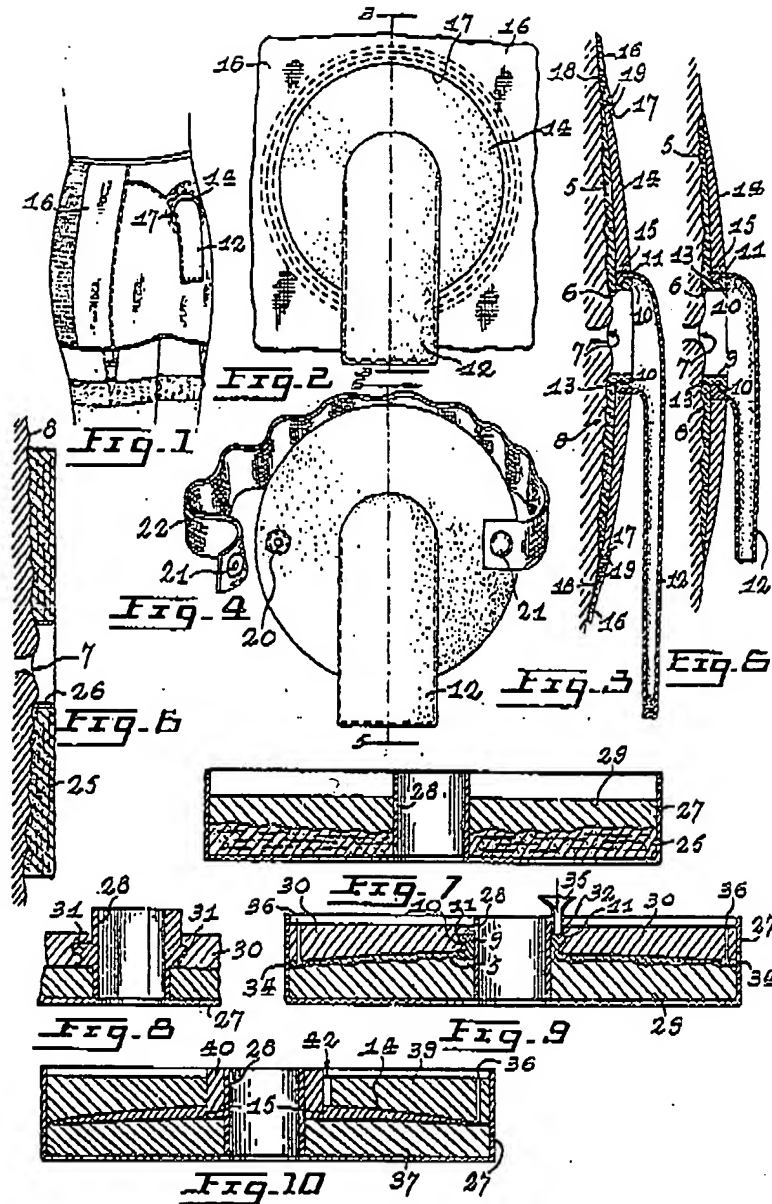
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1 SHEET

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